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chemical journals form an excellent feature of the book. The habit of going to proper sources for fuller information cannot be formed too early and is of fundamental importance to any one hoping to do scientific work.

W. A. N.

A Manual of Quantitative Chemical Analysis, for the use of Students. By FREDERICK A. CAIRNS, A. M., Late Instructor in Analytical Chemistry in School of Mines, Columbia College. Third edition. Revised and Enlarged by ELWYN WALLER, Ph.D., formerly Professor of Analytical Chemistry in School of Mines, Columbia College. New York, Henry Holt & Co. 1896. Pp. xii+417.

This work was first published in 1880. In the thorough revision, which has become necessary, a considerable portion has been rewritten and additional chapters have been inserted, while the portion upon organic proximate analysis has been omitted.

The book is evidently intended for use in training those who intend to use their knowledge of analytical chemistry along commercial lines. After an introduction of twenty-two pages, ten chapters are given which contain directions for the complete analysis of a series of pure salts, including directions for the determination of seventeen elements. Then follows the main portion of the book, with chapters giving detailed directions for the analysis of limestones, clay, ores, metals and alloys as found in commerce, potable and mineral waters, acids and alkalies, bleaching powder, fertilizers, coal and commercial nitrates.

The selection of topics is such as to meet very satisfactorily the need of the practical chemist, and the directions given are clear and sufficiently full for beginners. The appendix, by Professor Waller, giving the properties of precipitates is an especially valuable feature of the book.

It would be impossible for any one to write a book covering such an multitude of details as are required in quantitative analysis and give directions which accord, in every case, with the best knowledge of the subject. Two cases which may be criticized on this ground are worthy of notice because of their importance. Gladding has shown (J. Am. Ch. Soc., 17, 398) that barium chloride should be added very slowly to secure a pure precipitate of barium sulphate, and Jannasch and Richards (J. Prak. Ch., 39, 321) and Schneider (Z. f. Phys. Ch., 10, 425) have shown that the barium sulphate precipitated in presence of ferric salts contains ferric sulphate, which loses sulphuric acid on ignition and renders a subsequent purification by fusion inaccurate. The other case is that of the Lindo-Gladding method for the determination of potassium. It has been shown that the method is inaccurate because the potassium of the chloro-platinate is partly replaced by ammonium on washing with ammoniums chloride.

Since Ostwald has pointed out so clearly the value of the new theories of physical chemistry for the practical discussion of many topics in analytical chemistry, it is to be hoped that some discussion of that sort may soon find its way into our text-books. The present book is neither better nor worse than others in that regard.

W. A. N.

SCIENTIFIC JOURNALS.

THE AUK, JANUARY, 1897.

THE number contains articles of varied interest. Mr. E. W. Nelson describes some forty new species and subspecies and one new genus of birds from Mexico and Guatemala, collected by himself and Mr. E. A. Goldman during explorations conducted for the Biological Survey of the United States Department of Agriculture during the last five years. These collections include between four and five thousand specimens, many of them collected in districts never before visited by an ornithologist. Dr. A. P. Chadbourne concludes his paper, begun in the October number, on 'Evidence suggestive of the Occurrence of Individual Dichromatism in *Megascops asio*.' This paper is illustrated with a colored plate. Two captive individuals of this species, fed on an exclusive diet of liver, were observed to change from the gray to the red phase without any evidence of molting. Other technical papers treat of various questions of nomenclature and include descriptions of a new subspecies each of the Yellow and Black-throated Blue Warblers.

Papers of a more popular character include 'Notes on a Captive Hermit Thrush,' by Daniel E. Owen; 'Recent Investigations of the Food of European Birds,' by F. E. L. Beal; 'Some Notes on the Nesting Habits of the White-tailed Kite,' by Chester Barlow; 'Report of the A. O. U. Committee on Protection of North American Birds,' by William Dutcher, and an account of the 'Fourteenth Congress of the American Ornithologists' Union,' by the Secretary, John H. Sage. Mr. Owen's experiments with the Hermit Thrush go to show that its digestion is extremely active, blueberries being found to traverse the digestive tract in one hour and a-half; also that its capacity for food was enormous, it being capable of digesting its own weight of raw meat daily. The report of the Committee on Bird Protection shows that much work is being done in behalf of the preservation of wild birds, with, in many cases, highly encouraging results. The protection of the colonies of Terns at Muskeget Island, Massachusetts, and Great Gull Island, New York, has been continued, and both colonies give evidence of considerable increase.

Under 'General Notes' is the usual variety of short communications giving items of interest respecting various rare species or the capture of species at unusual localities; under 'Recent Literature' a dozen pages are devoted to reviews of recent ornithological publications. The number closes with the 'Eighth Supplement to the American Ornithologists' Union Check List of North American Birds,' occupying twenty pages, and adding several newly recognized genera and subgenera and some twenty species and subspecies to the Check List. Also two subgenera are raised to the rank of genera, and three generic names are changed, involving changes in the names of nine species; while the names of twenty other species and subspecies are also changed, mainly through the discovery of earlier names than those previously adopted in the Check List. The additions and mutations thus number nearly seventy. Besides this, six recently described species and subspecies, and nine proposed changes of nomenclature, are treated as not entitled to adoption; while nearly a dozen other cases are deferred for final action later. Thus, within the two years that have elapsed since the publication of the Seventh Supplement to the Check List, it appears that nearly one hundred cases have arisen requiring action by the A. O. U. Committee on Nomenclature; showing, for one thing at least, no lack of activity on the part of workers in North American ornithology.

JOURNAL OF GEOLOGY, JANUARY–FEBRUARY, 1897.

Comparison of the Carboniferous and Permian Formations of Nebraska and Kansas: By Charles S. Prosser. The classification of the Carboniferous and Permian worked out in Kansas by the author is extended to cover the corresponding beds of Nebraska. In this opening paper the details of the formations as they occur in Nemaha, Johnson, Gage and Otoe counties are given, with many facts of historical and local interest.

Evidences of Recent Elevation of the Southern Coast of Baffin Land: By Thomas L. Watson. The author, a member of the Cornell Greenland expedition, concludes: (1) There is conclusive evidence of a recent elevation of 270 to 300 feet along the south and southeast coast of Baffin Land, as indicated by raised beaches, differential weathering and remains of living genera and species in beds associated with the beaches. The movement seems not to have been everywhere alike, but was only in part slow and gradual. (2) Conditions strongly favor a permanent movement on Big Island and in Cumberland Sound. (3) The Baffin Land uplift was probably coextensive with that described by Bell and Tyrrell in the Hudson Bay region. The paper includes a partial bibliography.

Italian Petrological Sketches, III: By Henry S. Washington. The author continues his discussion of Italian volcanics, treating the Bracciano, Cerveteri and Tolfa regions. Tosconite, an acid effusive characterized mineralogically by the presence of basic plagioclase as well as orthoclase with occasional quartz and chemically by high silica and alkalies and (for the acidity) high lime and low alumina, is defined. The rock is the equivalent of Brogger's quartz-trachyte-andesite and approaches his dellenite. The accompanying rocks are described

in detail and the paper includes seven excellent analyses.

Mode of Formation of Till as Illustrated by the Kansan Drift of Northern Illinois: by OSCAR H. HERSHEY. The following stages are distinguished: (1) The residuary clay is crushed and kneaded, perhaps moved a short distance, but remains free from foreign material. (2) The process is continued, foreign material is added, and there is greater, probably sub-glacial, transformation. This is believed to be represented by most of the till of Stephenson County. (3) Calcareous material is deposited in the till from solution. (4). The horizontal rock caps of the preglacial hills are pushed forward and titled. (5) These rock masses become fractured and are rolled and kneaded together. (6) By a continuation of the process a very stony till relatively free from foreign rocks is formed. (7) The angular limestone débris becomes commingled with 10 per cent. to 50 per cent. of rounded Canadian pebbles. (8) The red clay, stage 2, may become mixed with the angular limestone, stage 6. (9) Preglacial and marginal lake-bed silts become mixed with the till forming the yellow clay frequently considered to be englacial. Deposition is considered to be largely marginal and mainly subglacial.

The Geology of the San Francisco Peninsula: by HAROLD W. FAIRBANKS. Lawson's* report upon the geology of the peninsula is criticised, the author taking exception to the use of the term chert and the reference to the siliceous bands in the foraminiferal limestone as veins. He dissents from the reference of the origin of the jaspers to siliceous springs on the bottom of the ocean and urges that they were formed from radiolarian and other siliceous remains dissolved in sea water. The 'silica-carbonate sinter' deposits are held to be of recent origin and hence of no value as a base for the correlation of the Knoxville and Franciscan series (Golden Gate Series of Fairbank). It is believed that Professor Lawson has unduly minimized the importance of the disturbances which the older uncrystalline rocks show. Attention is called to the absence of any new evidence for continuing to place the Series in the Cretaceous, and the use of the term laccolith in describing the intrusives is deplored. The granite of the Golden Gate Series is held to be older than those of the Sierra Nevada rather than of the same age. H. F. B.

* Fifteenth Ann. Rept., U. S. Geol. Surv., pp. 405–476.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES.—SUB-SECTION OF ANTHROPOLOGY AND PSYCHOLOGY.

THE Academy met at Columbia University on Monday evening, January 25th, with President Stevenson in the chair. The Sub-section of Anthropology and Psychology immediately organized under the chairmanship of Professor F. H. Giddings and proceeded to the regular program, which consisted of reports upon the winter meetings of the various scientific associations represented in the Section. The first report was by Professor Giddings, upon the meeting of the American Economic Association in Baltimore. The speaker paid particular attention to the presidential address of Professor Henry C. Adams, on 'The Relation of Economics to Jurisprudence;' to the paper of ex-Secretary of the Treasury Charles S. Fairchild on 'What is the Present Direction of Acquisitive Investments? What are the Economic Effects of Such Investments?' and to Professor Arthur T. Hadley's paper on 'The Duty of the Government towards the Investor.'

Dr. Livingston Farrand presented brief abstracts of the more important psychological papers read at the meeting of the American Psychological Association in Boston, December 29 and 30, 1896, and was followed by Dr. Franz Boas, who spoke of the meeting of Section H (Anthropology) of the American Association for the Advancement of Science, in New York, approving the action of the Section in recommending a regular winter meeting, to be held, if possible, at the same time and place as the American Psychological Association and the American Society of Naturalists, and reviewing briefly some of the papers presented at the meeting.

Mr. Harlan I. Smith reported on the American Folk-Lore Society's meeting in New York, on December 20th, dwelling particularly on Miss Fletcher's paper, 'Certain Early Forms of Ceremonial Expression,' and on the discussion